Community		Current Treatment Technology		Or is there		Design Flow (MGD)
	BNR (modified Johannesburg), 3.1 to 3.4 MGD, avg. .12 mg/l TP; 10 mg/l TN		Yes. LOP, Ashley Creek		5.4	3.10
186%			Bozeman		Bairdenphio, new plant will be BNR (1 mg/l TP; 3 mg/l TN starting in 2011);	
$12,370,056	$846	$1,218	**2.92**	228%		
	67.50	$5,413,500	$1,298,400	$6,711,900	$544	$822
$37,335.00	$360.00	0.96%	$13.50, the $27 million upgrade in new capital costs plus $1.125 million in additional O&M costs which would bring them to		62.90	$5,044,580
26	26	104,170	41,841	$45,004.00	$218.28	0.49%
advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; meets Clark Fork criteria w/ mixing zone: 8.2 mg/l TN, 0.16 -0.4 mg/l TP; get a mixing zone, meeting criteria currently; BNR - Design flow - 12 MGD; actual flow - 9 MGD - (designed for 10 and 1) - (UDR)						

		Great Falls		conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD)		Yes. Missouri River
$1,513	$1,700	**4.18**	808%			**Other Large Communities > 1 MGD**
	62.50	$5,012,500	$865,600	$5,878,100	$1,844	$2,444
$37,554.00	$236.10	0.63%	Assume WERF Tier 1		46.25	$3,709,250
		1.98				
removal. 0.8 mg/l TP; 3-4		Yes		2.5	1.5	5,901
		Havre		sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4		Yes
$648	$888	**2.04**	270%			
				265-6719 - City Office		

Upgrade to RO						
523	$50,729	$362.40	0.71%	Assumed WERF Level 2. Correct? Paul.		$5.46
	Yes		0.34	0.38	3,892	1,060
	Stevensville		with TN generally below 20 and TP less than 4.		Yes	
3.17	100%			**Lagoons**		
					Philipsburg	
$ 349,672.00	94,810.00	$444,482.00	$1,113.99	$1,314	**4.19**	557%
0.31%	4000 gallons. Base rate $9.48 at 3000 gallons plus $2.06 for next 1,000 gallons		$14.02	$ 1,124,195.48	246,140.40	$1,370,335.88

3,111	1,522	$40,320	$409.56	1.02%	plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P	
O&M increase of		Yes		1.3	0.6	4935

		$2,586				
$142,215.00	$1,016,395.00	$595.08	$1,175	**2.65**	103%	
	$0.57	$45,457.36	$7,110.75	$52,568.11	$991.85	$1,592
$29,000	259.56	0.90%		$3.49	$279,737.60	$30,813.25

Big Fork number of household based on population divided by 2.5

	Actual Flow (MGD)		Community Population (Census 2010)		(American		Income (2010) American Community
19,927	7,705	$39,953.00	$361.68	0.91%	on a base rate of		49.14
Yes. Also Gallatin TMDL in the works.		13.8	5.80	37,280	14,614	$41,661.00	$372.00
Helena		BNR; 3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD		Yes. WLA set in TMDL based on numeric criteria.		5.4	3.00
1.74	196%			Butte		MGD; talking about lowering to 6.1 MGD. Sewer Fee based on DEQ estimtes.	
$1,161,800	$6,206,380	$442	$802	**2.15**	123%		
The numbers for Billings and Great Falls (treatment levels, treatment costs etc.) were obtained from HDR		312.50	$25,062,500	$11,252,800	$36,315,300	$868	$1,086

ection; meets Clark Fork criteria w/ mixing zone. 8.2 mg/l TN; 0.16 -0.4 mg/l TP; get a mixing zone, meeting criteria currently. BNR. Design flow = 12 MGD ; actual flow = 9 MGD. (designed for 10 and 1). (HDR)

	26	26	58,505	23,998	$40,718.00	$187.20	0.46%
Livingston		primary clarifiers, 3 rotating biological contactors, UV, installing co-composting DMR		Yes. Discharge into the Yellowstone River.		5	2
6.85	307%			Miles City		study to remove nutrients. Extended aeration system w/2 oxidation ditches w/rotating brush aerators; 2 clarifiers	
$865,600	$4,574,850	$1,300	$1,537	**4.09**	551%		

1.98

2,727	$31,729.00	$387.60	1.22%	based on current		18.50	$1,483,700
	1.8	1.38	9,310	3,709	$43,577	$240.00	0.55%
Non-Lagoon Facilities with < 1MGD							
	Columbia Falls		Newer plant. Designed to achieve 8 mg/l TN		Yes		0.766

Upgrade to RO

$437,892	$63,408	$501,300	$959	$1,321	**2.60**	264%	
$46,442	$363.00	0.78%	Level 1.		$4.25	$340,850	$164,464
0.3	0.29	1,809	795	$33,776	$535.08	1.58%	
lagoon - ref: Gary Swanson, consulting engineer- 15TN, 2TP		Yes.		0.2	0.2	820	399
		Cut Bank		Lagoon.		Yes	
$1,062.28	$1,201	**2.68**	767%			Deer Lodge	

$71.94	$1,261,145.00	$502,493.00	$1,763,638.00	$1,158.76	$1,568	**3.89**	283%
1883	$42,821	$213.96	0.50%		$28.34	$2,272,868.00	$284,430.00
						0.61%	based on DEQ estimates. DEQ MHI value less than the 2010 USDA county
					0.3	4270	1708
	Highwood		Lagoon.		Yes		0.026
2.54	165%			Circle		Lagoon.	
$310,550.85	$1,327.14	$1,587	**5.47**	511%			
							NOTE: Operation costs includ

					Notes
				Big 7 Communities	
					Kalispell
$3,941,028	$1,228,530	$5,169,558	$671	$1,033	**2.58**
0.89%	obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN		125.58	$10,071,51	$2,298,540
28,190	12,337	$47,152.00	$277.80	0.59%	obtained from City in 2011. Plant ~
Yes. EOP.		8.5	4.00	33,525	14,041
Billings		2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max.		Yes. Discharge into the Yellowstone River.	
2.41	398%			Missoula	
. (HDR)				**1.47**	232%

At WERF 1. The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR.		312.50	$25,062,500	11,252,80	36,315,300
7,044	3,188	$35,689.00	$600.00	1.68%	Assume WERF Tier 1
Yes. Discharge into the Yellowstone River.		3.7	2	8,410	3,518
Hamilton		extended aeration system. Oxidation ditch w/ rorating brush aerators. 3 clarifiers. Upgraded in 2010. TN avg. 5.5		Yes	
				Lewistown	
$423,675	$1,907,375	$699	$1,087	3.43	180%
Assumed WERF Level 1 and 5,000 gallons usage. Rate is $9.15 flat plus $2.15 per 1,000 gallons		$22.50	$1,804,500	$597,264	$2,401,764
0.37	4,688	1,621	$38,750	$532.20	1.37%

				0.4	1,520
			Lolo		Sewer rates--Lolo $30.25-ish/mo - (RSID) based on property values
$505,314	$477	$840	**1.81**	131%	
$3.75	$300,750	$125,512	$426,262	$536	$1,071
$31,375.00	$200.00	0.64%	ssume WERF 1		$4.36
0.643	0.643	2,869	1,290	$44,833	$138.48
planning document--To get to variance only. Because this would be a land application		Yes		3.3	1.06

				Glendive	
$2,557,298.00	$1,358.10	$1,572	3.67	635%	
	$26.16	$2,098,032.00	$308,132.50	2,406,164.5	$2,280.72
$44,398	580.36	1.31%		$10.90	$874,180.00
0.015	176	53	$62,614	600.00	0.96%
Yes		0.16	0.065	615	234

e energy and chemical costs only and do not include labor and maintenance cost. As such, these numbers are on the low side.

NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the site-specific conditions at each plant.

NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion factor)

NOTE: MHI is based on data from Montana CEIC based on 2010 estimates.

Indicates rough estimates; need to verify

	WERF				

	Level		Description	

350					
	14.4	640			
	<0.1 mg/l TP; 3 mg/l TN		15.3	880	
	Level 5		<0.01 mg/l		21.8

			Costs to		Capital
		Operations ($1/		Operations	
				9.1	
		Kalispell			5.4
74,400.00	1,228,530.00		Bozeman		9.1
159,340.00	139,200.00	2,298,540.00		Helena	
3.00	1,226,400.00	72,000.00	1,298,400.00		Butte
266,450.00	4.00	1,065,800.00	96,000.00	1,161,800.00	
1120	408,800.00	26.00	10,628,800.00	624,000.00	11,252,800.00
121,760.00	730	266,450.00	9.00	2,398,050.00	216,000.00
25.0625	$25,062,500.00	1120	408,800.00	26	10,628,800.00
$62.50	$5.01	$5,012,500.00	1120	408,800.00	2.00
3.7	$46.25	$3.71	3,709,250.00	1120	408,800.00
12.5	1.98	$24.75	1.98495	$1,984,950.00	1120
	7.4	2.5	$18.50	1.4837	$1,483,700.00
Havre		12.5	1.8	$22.50	1.8045
	Columbia Falls		7.4	0.766	$5.67
680,900.00		Manhattan		9.1	0.6
3,840.00	$63,408.00		Lolo		12.5
155,344.00	9,120.00	$164,464.00		Stephensville	
0.29	118,552.00	6,960.00	$125,512.00		Philipsburg
450,050.00	0.20	90,010.00	4,800.00	$94,810.00	

1120	358,800.00	0.64	230,708.40	15,432.00	$246,140.40
769,588.00	1370	450,050.00	1.06	477,053.00	25,440.00
2.27287	$2,272,868.00	1370	450,050.00	0.6	270,030.00
$26.16	2.09803	$2,098,032.00	1370	450,050.00	0.65
0.5	$10.90	0.87418	$874,180.00	1370	450,050.00
21.8	0.026	$0.57	0.04546	$45,457.36	1370
	21.8	0.16	$3.49	0.27974	$279,737.60

Capital Cost ($/gpd)		Operations			
Level 1		No N and P removal		9.3	250
		Level 2		1 mg/l TP; 8 mg/l TN	
				Level 3	

1370

	Design Flow		Facility		
Actual Flow		Facility		Membrane	
$49.14	$3.94	$3,941,028.00	1020	372,300.00	3.10
13.8	$125.58	$10.07	0,071,516.00	1020	372,300.00
12.5	5.4	$67.50	$5.41	$5,413,500.00	1120
	7.4	8.5	$62.90	$5.04	$5,044,580.00
Billings		12.5	25	$312.50	$25.06
	Missoula		7.4	12	$88.80
2,614,050.00		Great Falls		12.5	25
624,000.00	$11,252,800.00		Livingston		12.5
817,600.00	48,000.00	$865,600.00		Miles City	
2.00	817,600.00	48,000.00	$865,600.00		Hamilton
408,800.00	0.68	277,984.00	24,000.00	301,984.00	
730	266,450.00	1.50	399,675.00	24,000.00	423,675.00
$1,804,500.00	1120	408,800.00	1.38	564,144.00	33,120.00
0.45461	$454,605.68	730	266,450.00	2.00	532,900.00
$5.46	0.43789	$437,892.00	1020	372,300.00	0.16
0.34	$4.25	0.34085	$340,850.00	1120	408,800.00
12.5	0.3	$3.75	0.30075	$300,750.00	1120
	21.8	0.2	$4.36	$0.35	$349,672.00
Cut Bank		21.8	0.643	$14.02	$1.12

	Deer Lodge		21.8	3.3	$71.94
$502,493.00		Glendive		21.8	1.3
14,400.00	$284,430.00		Red Lodge		21.8
292,532.50	15,600.00	$308,132.50		Big Fork	
0.30	135,015.00	7,200.00	$142,215.00		Highwood
450,050.00	0.015	6,750.75	360.00	$7,110.75	
1370	450,050.00	0.065	29,253.25	1,560.00	$30,813.25

12.7
0.1-0.3 mg/l TP; 4
Level 4

Total Operations
1,154,130.00
5.80
408,800.00
730
$25,062,500.00
7.12176
$312.50
5
12.5
Lewistown
$597,264.00
48,000.00
59,568.00
0.38
408,800.00
1370
$1,124,195.48

$5.77
$28.34
1.2
21.8
Circle

	Community	
Annual Capital cost to meet the approximate variance levels (L4 WERF)		
Kalispell		mg/l TN. Town expected to pay an addition $6,967,150.56 annually
$911.88	$6,967,150.56	$6,967,150.56
$0.00	$372	**0.79**
$18.36	$1,472,472.00	109,500.00
$360.00	0.90%	Will already meet variance levels after upgrade. While current monthly fee is $13.50, the $27 million upgrade in new capital costs plus $1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP would raise rates to $30 per month
	108,623	28,290
	Billings case study,	
914,277.04	$14,914,277.04	
$404	**0.90**	85%

$73,000.00	$1,436,400.00	$484.35
	22.20	
25,161	$276.00	1.10%
	5,813	2,325
	suspended growth system, clarifiers and aerobic sludge digestion, UV. DMR data	
341,090.14		
$532	1.37	0%
643860	$2,761,140.00	$668.56
0.56%	lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 15TN, 2TP	

1,290	$29,000	$138.48
	Yes	
Glendive		Upgrade from a lagoon to mechanical plant - BNR or otherwise
		Redlodge

Current Treatment Technology		Flow Category		Community Population
	> 1 MGD (1 mg/l TP; 10 mg/l TN)		27,544	10,012
	Bozeman		to achieving 1 mg/l TP and 3 -5 mg/l TN starting in 2011/2-12. Town expected to pay an additional	
0%	$941.30	$8,319,750.20	$8,319,750.20	
$1,581,972.00	$128.23	$394	**0.75**	48%
	$27.00	$2,165,400.00	1,125,000.00	$3,290,400.00
$40,130.00	$152.14	0.38%	Already meets variance levels	
> 1 MGD (1 mg/l TP; 10 mg/l TN)		82,178	23,998	$40,434.00
Billings		MGD max. Based on Billings case study, likely long-term		> 1 MGD (1 mg/l TP; 10 mg/l TN)
$900.08	$28,527,193.80	$28,527,193.80		Livingston

$1,084	**3.04**	81%		

22.20

	5.00	793,980.00	$238,000.00	$1,031,980.00
31,729	$387.60	1.22%		1.00

Discharges into Diva Ditch. Permit renewed in 2010. Denitrification with fixed film suspended growth system, clarifiers and aerobi

Columbia Falls		Columbia Falls already meets variance level standards. Actual cost of $3,927,688		Yes- but Columbia Falls already meets it
$775.00	$393,578.80			Havre
$909	2.39	279%		
$0.68	$54,536.00	7,300.00	$61,836.00	$154.98

0.48%	4000 gallons. Base rate $9.48 at 3000 gallons plus $2.06 for next 1,000 gallons		$21.80	$1,018,540.00
3,111	1,522	$40,320	$409.56	1.02%
		4621.00	1848.40	37000.00
	Upgrade from a lagoon to mechanical plant - BNR or otherwise would result in 1.5% MHI			9,756.00

2% MHI information

draft numbers pending input

	(Population / 2.5) based on 2000		countywide MHI.
$45,594.00	$216.00	0.47%	rates obtained from
> 1 MGD (1 mg/l TP; 10 mg/l TN)		37,280	14,614
Helena		achieving variance levels. Currently at 3 mg/l TP and 10 mg/l TN. Town expected to pay an additional	
$1,046.34	$9,633,963.30	$9,633,963.30	
$234.34	$594	**1.48**	65%
$0.00	$0.00	$0.0	$0.00
$187.20	0.46%	HDR.	
	104,170	41,841	$45,004.00
	that meeting 1 mg/l and 10 TN would be the feasible limits. MHI of 3.05 percent to achieve WERF		> 1 MGD (1 mg/l TP; 10 mg/l TN)

		Miles City	
22.20			
$496.14	$772	**3.07**	
200,500.00	$150,000.00	$350,500.00	$150.74

wth system, clarifiers and aerobic sludge digestion, UV. DMR data from winter quarter shows 11 mg/l TN and 1 mg/l TP. 2008-2010 show

	4,688	1,621	$38,750
	Permit renewed in 2011. Activated sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4 (TN not required). 2011 DMR showed TN of 19.4 mgl; Tp of		
		Lagoons	
			Philipsburg
$355	0.99	77%	$716.12

7,300.00	$1,025,840.00	$795.22	$934
	$15.25	$1,261,145.00	602,000.00
213.96	0.58%		$10.00
3,902	$40,379	305.28	

	household sewer bill		sewer fee as %	
	$0.00	$0.00	0.00	$0.00
$47,065.00	$372.00	0.79%	Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really	
> 1 MGD (1 mg/l TP; 10 mg/l TN)		28,190	12,337	$52,317.00
Butte		$27 million upgrade in new capital costs plus $1.125 million in additional O&M costs which would		> 1 MGD (1 mg/l TP; 10 mg/l TN)
$801.10	$6,193,485.10	$6,193,485.10		Missoula
$0.00	$152	**0.38**	0%	$802.60
$85.00	$6,817,000.00	$949,000.0	$7,766,000.00	$323.61
$218.28	0.49%	levels, cost, etc.) were obtained from HDR.		$85.00
	7414	2965.6	35,689	$600.00

2011 permit; calculated variance limits to <0.1 mg/l TP; 3 mg/l TN		> 1 MGD (1 mg/l TP; 10 mg/l TN)		9500

				Lewistown
$538	**1.70**			

1 mg/l TN and 1 mg/l TP. 2008-2010 showed avg. TN of 14 mg/l TN and 4 mg/l TP.

$532.20	1.37%			$0.00
10,325.00	4130	$38,082	240.00	0.63%

	Tel. Gary Swanson, consulting engineer- 15TN, 2TP; Do we		Yes.	
$205,931.88			Cut Bank	

3.22	574%	$580.00	$569,560.80	
$1,863,145.00	$1,224.14	$1,634	4.05	299%
$802,000.00	300,000.00	$1,102,000.00	$596.19	$810
Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.		$10.00	$802,000.00	300,000.00

Notes		dollars) to meet the	> 1 MGD
$0.00	$216	**0.47**	0%
$0.00	$0.00	0.00	$0.00
$265.44	0.51%	Sewer rates obtained from City in 2011. Plant ~ WERF Level 1.	
	33,525	14,041	$40,055.00
	Achieiving 8.2 mg/l TN; 0.16 -0.4 mg/l TP. Would the town be expected to pay more (~$18 million annually)		> 1 MGD (1 mg/l TP; 10 mg/l TN)
8,401,513.40	,401,513.40		Great Falls
$511	**1.26**	173%	$808.68
$6,817,000.00	$949,000.0	$7,766,000.00	$185.61
1.68%		17.00	1,363,400.00

	3800	37,554	$236.10	0.63%
			5,200	2080
		levels;BNR plant. Lready below proposed interim effluent		> 1 MGD (1 mg/l TP; 10 mg/l TN)
			Facilities with < 1MGD	
				Manhattan
				$1,014.58
	$0.00	0.00	$0.00	$0.00
	MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county		$26.40	$2,117,280.00
	820	399	35806.00	200
		Yes		2,869

	Deer Lodge		application. Ref: planning document--To get to variance only. Because this would be a land application system, so
$806.40	$603,990.48		
2.19			
$1,102,000.00	$282.39	$588	1.46

WERF

Level		Description	

14.4	640				
<0.1 mg/l TP; 3 mg/l		15.3	880		
Level 5		<0.01 mg/l TP; 1 mg/l		21.8	1370

		Costs to Meet Criteria		Capital	
Operations ($1/ MG/day Treated)		**Operations Costs ($/ year/ 1 MGD)**		**Actual Flow**	
Kalispell		0	5.4	$0.00	$0.00
	Bozeman		0	13.8	$0.00
		Helena		3.4	5.4
109,500.00			Butte		Actual Costs
125,000.00	0.00	1,125,000.00			Missoula
36,500.00	26	949,000.00	0.00	$949,000.00	
100	36,500.00	26.00	949,000.00	0.00	949,000.00
363,400.00	100	36,500.00	2.00	73,000.00	0.00
1.78044	$1,780,440.00	630	229,950.00	2	459,900.00
$9.90	0.79398	$793,980.00		350,000	0.68
2.5	$2.50	0.2005	$200,500.00		100,000.00

	Actual Costs		0.766	$3,927,688.00	$315,000.58
	Havre		6	4.4	$26.40
		Philipsburg		3.4	0.2
7,300.00			Cut Bank		
				Deer Lodge	
					Glendive
	300,000		300,000		

Capital Cost ($/gpd)		Operations			
Level 1		No N and P removal		9.3	250
		Level 2		1 mg/l TP; 8 mg/l TN	
				Level 3	

Design Flow		Facility			
Facility Upgrade Operations Costs ($/year/1 MGD) based on Facility MGD		Membrane Replacement Cost ($24,000 /yr/1 MGD)*Actual Flow - not necessary b/c		Total Operations costs including membrane replacement	
$0.00	0	0.00	3.10	0.00	0.00
$0.00	$0.00	0	0.00	5.80	0.00
$18.36	$1.47	$1,472,472.00	100	36,500.00	3.00
	1	$27.00	$2.17	$2,165,400.00	0
Great Falls		3.4	25	$85.00	6.817
	Billings		3.4	25	$85.00
		Livingston		3.4	5
$73,000.00			Miles City		6
0.00	$459,900.00			Hamilton	
238,000.00		238,000.00			Lewistown
1.5	150,000.00		150,000.00		

$315,000.58	0	0.00	0.37	0.00	0.00
2.11728	$2,117,280.00	630	229,950.00	2.8	643,860.00
$0.68	$0.05	$54,536.00	100	36,500.00	0.20

	10		$10.00	0.802	$802,000.00
Red Lodge					

12.7	350
0.1-0.3 mg/l TP; 4	
Level 4	

0.00	
0.00	0.00
109,500.00	0.00
0.00	4.00
$6,817,000.00	100
$6.82	$6,817,000.00
$17.00	1.3634
3.7	$22.20
5	1.98
	1
Manhattan	
	Columbia Falls
$0.00	
0.00	$643,860.00
7,300.00	0.00

	300,000

	Community		countywide		Population		lds		Annual Household
Current wastewater MHI		Percent MHI needed to get to RO/Base Numeric Nutrient Criteria (including current fees)		Increase over current Wastewater Bill to Reach RO		Percent MHI needed to get to Variance in SB367 (including current fees)		Increase over current Wastewater Bill to Reach Variance	
lispell	Bozeman	$39,953.00	19,927	7,705	$216.00	5.4	3.10	0.54%	2.58%
		Helena	$41,661.00	37,280	14,614	$372.00	13.8	5.80	0.89%
,269			Butte	$47,152.00	28,190	12,337	$265.44	5.4	3.00
943	$8,359,551				$37,335.00	33,525	14,041	$360.00	8.5
65%	$747	$5,429,655		Billings		$45,004.0	104,170	41,841	$218.28
.90%	85%	$900	$28,527,194		Missoula		$34,319.0	66,788	27,553
232%	N/A		N/A		$686	719,915		Great Falls	
26	0.46%	4.18%	808%	1.26%	173%	$814	,050,586		Livingston
5	2	1.68%	6.85%	307%			$714	$362,731	
236.1	3.7	2	0.63%	4.09%	551%			$751	$1,811,700
2,092	$276.00	1.98	0.68	1.10%	5.44%	396%			$503
6,901	2,727	$387.60	2.5	1.5	1.22%	3.43%	180%		
3,577	9,310	3,709	$240.00	1.8	1	0.55%	2.04%	270%	
	$38,750.00	4,688	1,621	$532.20	0.766	0.37	1.37%	3.02%	120%
		$50,729.00	1,520	523	$362.40	0.6	0.4	0.71%	2.60%
	Lolo		$46,442.00	3,892	1,060	$363.00	0.34	0.38	0.78%
		Stevensvill		$33,776.00	1,809	795	$535.08	0.3	0.29
			Philipsburg		$31,375.00	820	399	$200.00	0.2
77%	$628	$170,573		Cut Bank		$44,833.0	2,869	1,290	$138.48
.22%	574%	$897	$978,052		Deer Lodge		$40,320.0	3,111	1,522
283%	4.05%	299%	$806	$603,990		Glendiv		$42,821.00	4935
.50%	3.67%	635%			$856	209,752		Redlodge	
0.65	0.61%	5.16%	747%			$1,002	735,525		Big Fork
0.5		1.31%	2.65%	103%			$888	$525,381	
500.0	0.026	0.015	0.96%	2.54%	165%			$1,252	$34,571
234	$259.56	0.16	0.065	0.90%	5.47%	511%			$580

Blue Fill = Town already meets the standard so no new costs or treatment needed

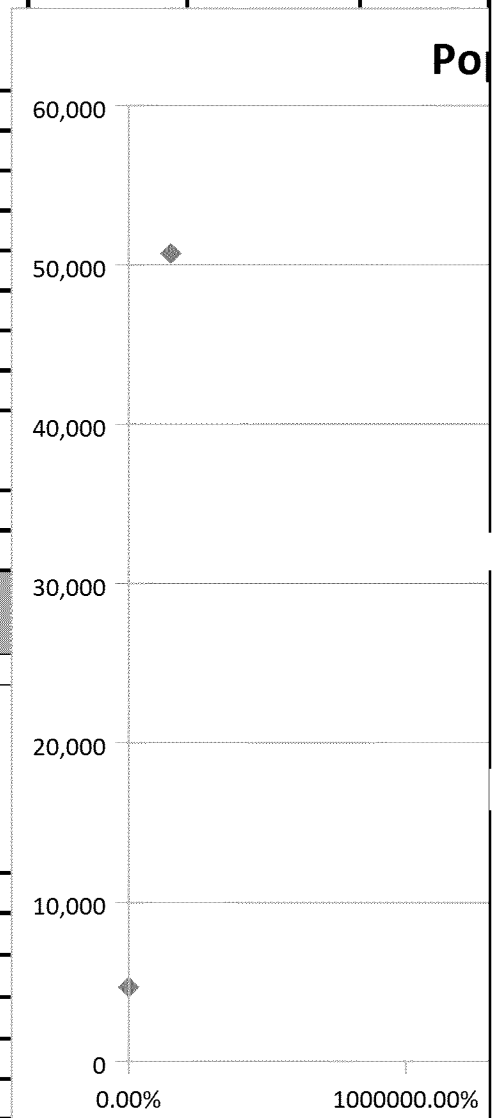
2% MHI per household	Design Flow (MGD)		Actual Flow (MGD)	
186%	0.47%	0%	$799	$4,492,477
2.92%	228%	0.79%	0%	$833
0.56%	1.74%	196%	0.75%	48%
4.00	0.96%	2.15%	123%	1.48%
26	26	0.49%	2.41%	398%
$152.14	12	9	0.44%	1.47%
$40,718.00	58,505	23,998	$187.20	26
	$35,689.00	7,044	3,188	$600.00
Miles City		$37,554.00	8,410	3,518
	Hamilton		$25,161.00	4,348
$475,344		Lewistown		$31,729.00
$635	$673,514		Havre	
	$872	$2,342,382		Columbia Falls
1.37%	0%	$775	$393,579	
264%	3.38%	373%	$1,015	$341,090
1.81%	131%			
1.58%	3.17%	100%		
0.2	0.64%	4.19%	557%	0.99%
0.643	0.643	0.31%	2.68%	767%
$409.56	3.3		1.02%	3.89%
1,883	$213.96	1.3	N/A	
$50,123.00	2125	1,055	$305.28	1.2
	$44,398.00	4270	1,708	$580.36
Highwood		$62,614.00	176	53
	Circle		$29,000.00	615
$74,983				

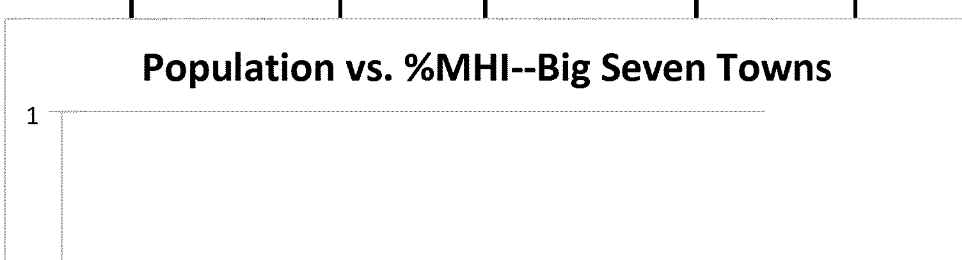
Yellow fill = Greater than 2% MHI to reach to certain level of wastewater tre

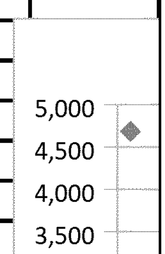
Orange fill = Greater than 100% increase in wastewater fee cost

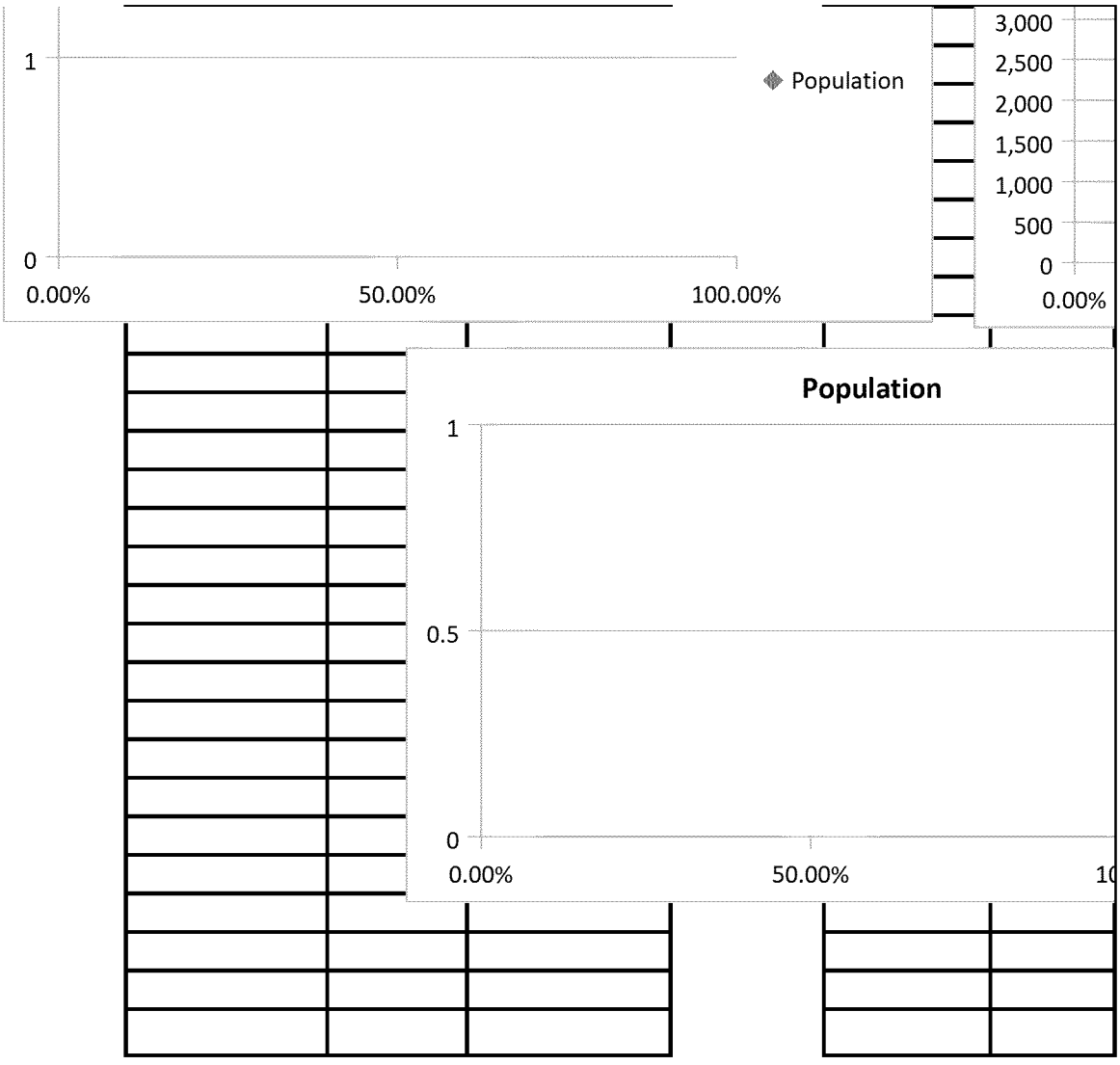
atment
s to reach to certain level of wastewater treatment

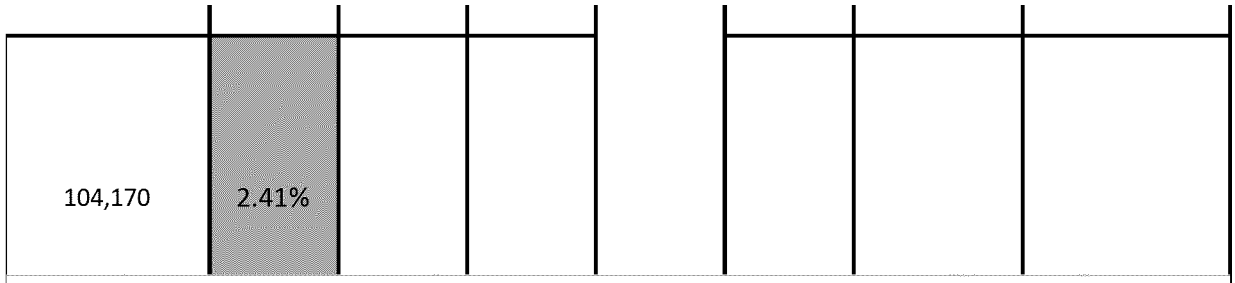
Community		countywide		Population		fees)
				Billings		$39,953.00
6.85%						
5,901	3.43%					
$43,577.00	4,348	5.44%				
	$38,750.00	4,688	3.02%			
Manhattan		$50,729.00	1,520			
	Lolo	Stevensvill e	$46,442.00			
			Glendive			

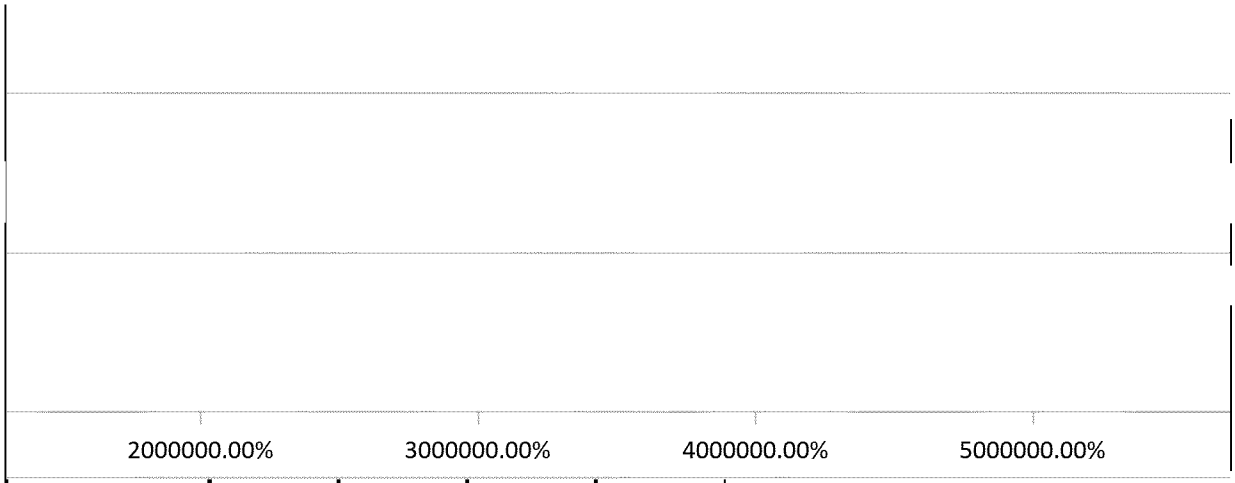







1
0
0.00%
50.00%
100.00%
Population
3,000
2,500
2,000
1,500
1,000
500
0
0.00%
Population
1
0.5
0
0.00%
50.00%

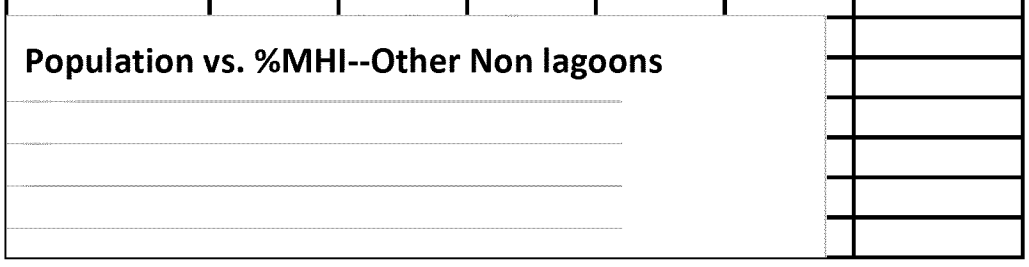


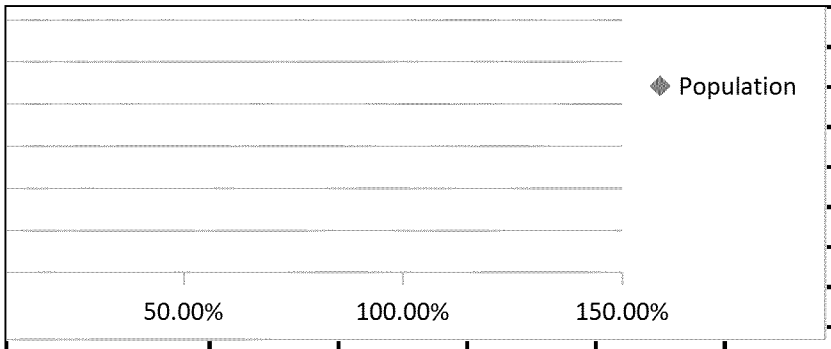


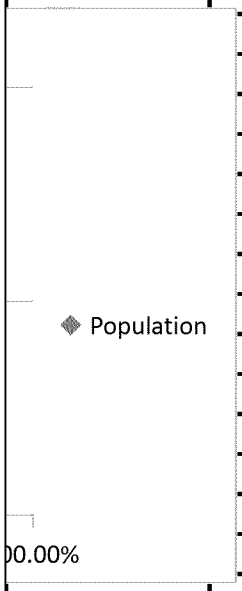
Yellow fill = Greater than 2% MHI to reach to certain le

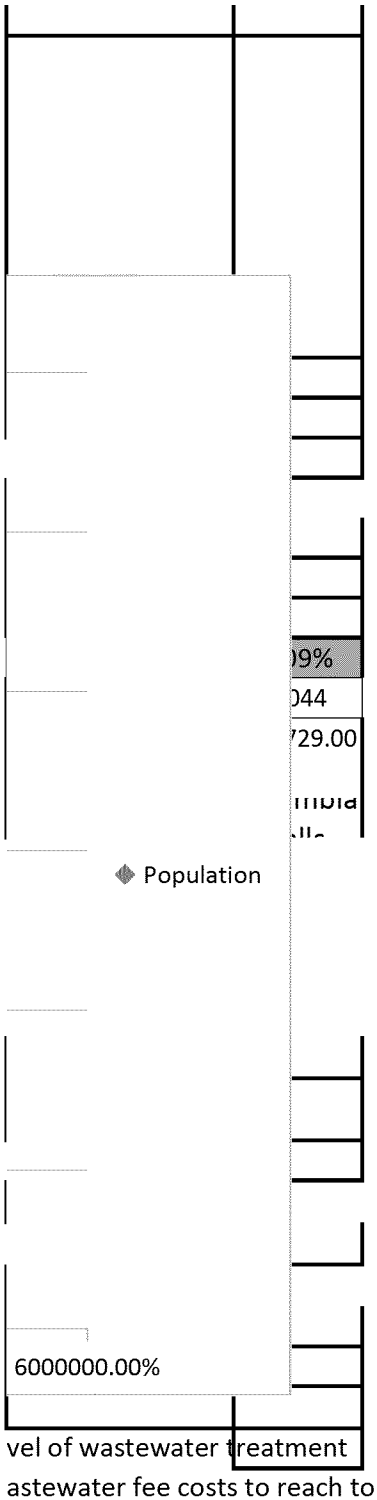
Orange fill = Greater than 100% increase in w

Blue Fill = Town already meet




Population
50.00%
100.00%
150.00%


Population
00.00%

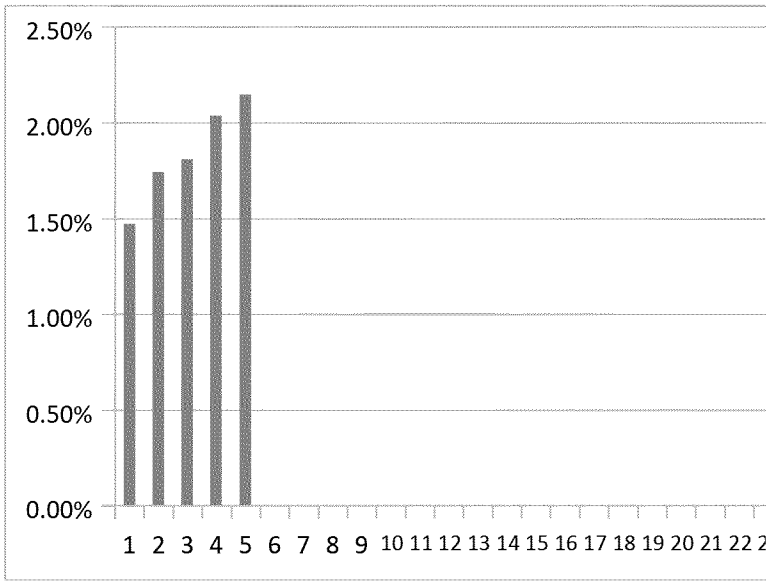


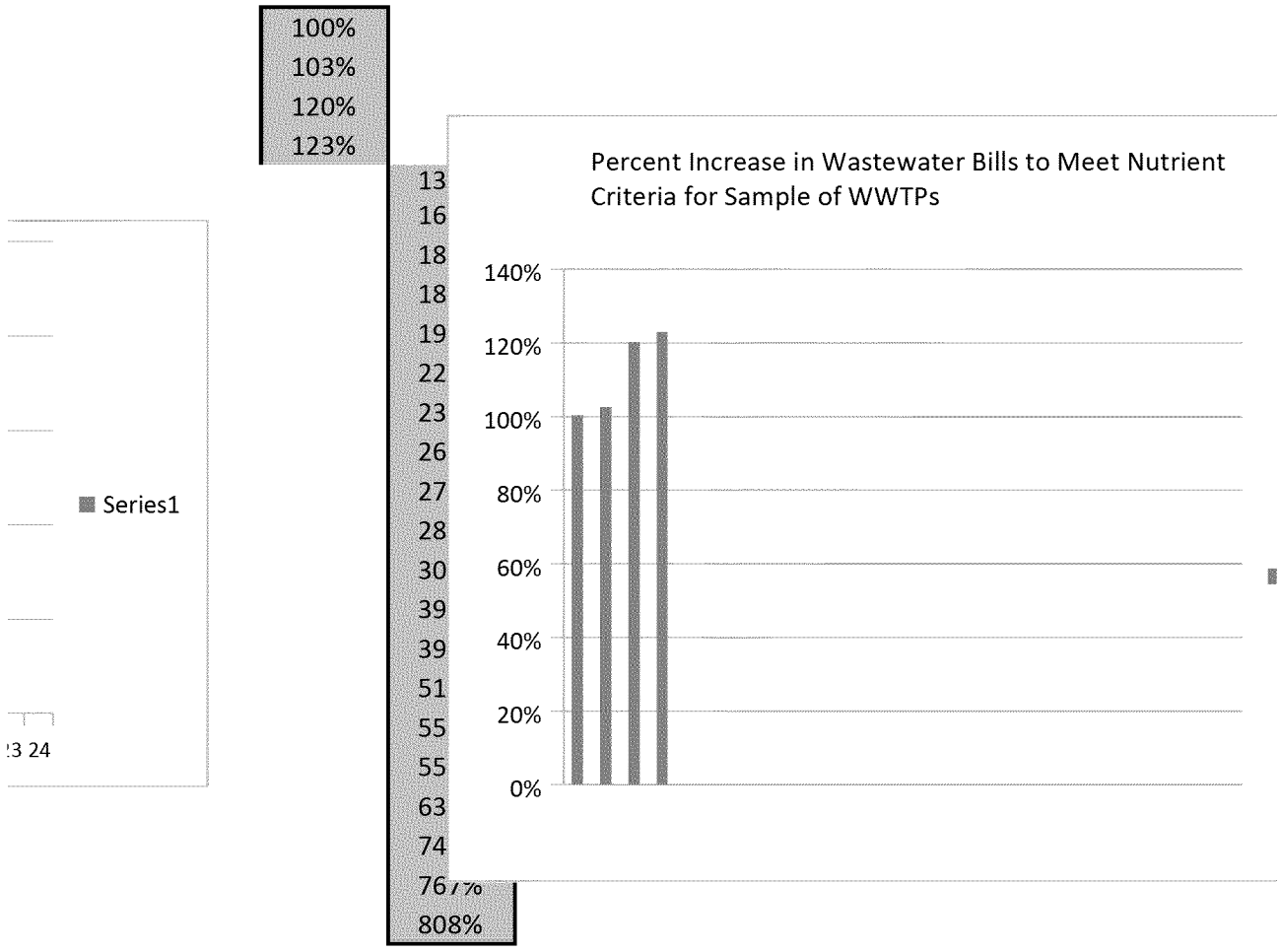
vel of wastewater treatment

astewater fee costs to reach to certain level of wastewater treatment

s the standard so no new costs or treatment needed

1.47%
1.74%
1.81%
2.04%
2.15%
2.41%
2.54%
2.58%
2.60%
2.65%
2.68%
2.92%
3.02%
3.17%
3.43%
3.67%
3.89%
4.09%
4.18%
4.19%
5.16%
5.44%
5.47%
6.85%




Percent Increase in Wastewater Bills to Meet Nutrient Criteria for Sample of WWTPs
140%
120%
100%
80%
60%
40%
20%
0%
Series1
100%
103%
120%
123%
13
16
18
18
19
22
23
26
27
28
30
39
39
51
55
55
63
74
808%


Series1

Community		Treatment		Design Flow (MGD)	
			Annual Capital and Operations cost ($)		
	to 5.4 MGD; ~WERF Level 2--avg.		5.4	3.10	49.14
	Bozeman		2 on average--BNR (1 mg/l TP; 3 mg/l		13.8
228%			Helena		Level 1--3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0
$822	**1.74**	196%			Butte
$6,206,380	$442	$802	**2.15**	123%	
$25,062,500	$11,252,800	$36,315,300	$868	$1,086	**2.41**
		9			
	26	26	312.50	$25,062,500	$11,252,800
Livingston		rotating		5	2

		Miles City		Algae plant study to remove nutrients. Extended aeration system w/2 oxidation ditches w/rotating brush	
4.09	551%			Hamilton	
$1,093					
$423,675	$1,907,375	$699	$1,087	**3.43**	180%
$22.50	$1,804,500	$597,264	$2,401,764	$648	$888
Assume WERF Level 3. Newer plant with good control. Designed to achieve 8 mg/L TN		0.766	0.37	$5.67	$454,606
Manhattan					
				Lolo	

$477	$840	**1.81**	131%		
$125,512	$426,262	$536	$1,071	**3.17**	100%
0.2	$4.36	349,672.0(	94,810.00	$444,482.00	$1,114
	0.643	0.643	$14.02	$ 1,124,195.48	246,140.40
	document--To get to variance only. Because this would be a land		3.3	1.06	$71.94
			Glendive		facultative; current O&M costs are <$; 8-10 capital costs for new plant. O&M increase of ~$300,000. new avg. 1.15 MGD; PER completed
$1,572	**3.67**	635%			Red Lodge
$2,406,164.50					
$874,180.00					**2.65**
0.015	$0.57	$45,457.36	$7,110.75	$52,568.11	$992
	0.16	0.065	$3.49	$279,737.60	$30,813.25

NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the s

NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 c

NOTE: MHI is based on data from Montana CEIC based o

Indicates rough e

Actual Flow (MGD)		dollars) to meet the numeric nutrient		cost to meet the numeric nutrient	
ital and Operations cost ($)					
$3,941,028	$1,228,530	$5,169,558	$671	$1,033	**2.58**
5.80	125.58	$10,071,516	$2,298,540	$12,370,056	$846
	5.4	3.00	67.50	$5,413,500	$1,298,400
	current design is 8.5 MGD. Included in current fee is $27 million upgrade in		8.5	4.00	62.90
	Billings		Secondary treatment; Design flow of 26 MGD (avg.) and 40 MGD max. Costs are estimated from HDR.		26
398%			Missoula		ultraviolet disinfection. 8.2 mg/l TN; 0.16–0.4 mg/l
9					
$36,315,300	$1,513	$1,700	**4.18**	808%	
62.50	$5,012,500	$865,600	$5,878,100	$1,844	$2,444

	3.7	2	46.25	$3,709,250	$865,600	$4,574,850
	WERF 1). BNR facility w/ extended aeration system. Oxidation ditch w/ rorating brush aerators. 3 clarifiers. Upgraded in 2010. TN avg. 5.5		1.98	0.68	24.75	$1,984,950
$1,093						
			Havre		facility with effluent chlorination.	
	2.04	270%				**Non-Lagoon Facilities with < 1MGD**
			265-6719 - City Office			
	$580,900	$1,035,506	$639	$1,171	**3.02**	120%
Manhattan						
	nutrient removal. For Lolo, TN is generally less than 30 mg/l and TP less than 7. Generally heaving loadings for Lolo. Sewer rates--Lolo $30.25-ish/mo -		0.34	0.38	$4.25	$340,850

Stevensville		WERF Level 1. TN generally below 20 and TP less than 4.		0.3	0.29
		Lagoons			
			Philipsburg		WERF 1--Lagoon - ref: Gary Swanson, consulting engineer-15TN, 2TP
$1,314	**4.19**	557%			Cut Bank
$1,370,335.88	$1,062	$1,201	**2.68**	767%	
$1,261,145.00	$502,493.00	$1,763,638.00	$1,159	$1,568	**3.89**
	1.3	0.6	$28.34	$2,272,868.00	$284,430.00
	WERF Level 0--Lagoon.		1.2	0.65	$26.16
	Big Fork		WERF Level 0--Lagoon.		0.5
103%			Highwood		WERF Level 0--Lagoon.
$1,592	**2.54**	165%			Circle
$310,550.85	$1,327	$1,587	**5.47**	511%	

ite-specific conditions at each plant.
onversion factor)
n 2010 estimates.

stimates; need to verify

Big Fork number of household based on population divided by 2.5

costs to meet the	
Big 7 Communities	
	Kalispell
186%	
$1,218	**2.92**
$6,711,900	$544
$5,044,580	$1,161,800
26	312.50
	12
	At WERF 1. Conventional Secondary activated sludge (max 21-MGD; avg. 10 MGD). Cost data from HDR.
	Other Large Communities > 1 MGD
6.85	307%

$1,300	$1,537
$301,984	$2,286,934
18.50	$1,483,700
1.8	1.38
Columbia Falls	

2.60	264%
$164,464	$505,314

$3.75	$300,750
	0.2
	WERF 0--Lagoon.
	Deer Lodge
283%	
$2,557,298.00	$1,358
$2,098,032.00	$308,132.50
0.3	$10.90
	0.026
	WERF Level 0--Lagoon.

NOTE: Operation costs include energy and chemical costs only and do not include labor an

d maintenance cost. As such, these numbers are on the low side.